REMARKS

In this Office Action, the Examiner indicates that the TITLE of the invention is not descriptive and requests that the present TITLE be replaced by a new TITLE that is more indicative of the invention to which the claims are directed. The Examiner further objects to the Disclosure because it does not have a BACKGROUND OF THE INVENTION heading. Claim 22 was rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Claims 1 – 22 were rejected under 35 U.S.C. §103 as being unpatentable over Hellerstein et al. in view of Chandra et al.

Applicants have replaced the TITLE with a new TITLE that is indicative of the invention to which the claims are directed. Further, Applicants have inserted the heading BACKGROUND OF THE INVENTION below the TITLE of the invention. Applicants therefore believe that the objection to the TITLE and to the DISCLOSURE should be withdrawn.

Regarding the 101 rejection to Claim 22, Applicants have amended the claim to change its direction from a SOFTWARE TOOL to a SYSTEM. Applicant submits that the 101 rejection is overcome. Note also that Claims 11 – 20 are amended to change their direction from MANUFACTURE to COMPUTER PROGRAM PRODUCT and Claim 21 is canceled. No new matter has been added.

By this amendment, Claims 1 – 20 and 22 remain pending in the Application. For the reasons stated more fully below, Applicants submit that the claims are allowable over the applied reference. Hence, reconsideration, allowance and passage to issue are respectfully requested.

As disclosed in the SPECIFICATION, there are two general approaches to have a computer automatically plot data. In the first approach, a user explicitly selects each and every data object for plotting. For example, in a spreadsheet application, a user may select a number of cells (or columns and rows) in a spreadsheet for plotting; in a database application, a user may submit the result

of a query for plotting. However, this approach has some drawbacks. A user may not know what to select or how to select the desired data. A user may also select data that is not all suitable for a particular analysis or plotting. For instance, non-numerical data may be included, or incomparable data (due to difference in either data format or data type) may be selected for a comparison chart.

In the second approach, data is automatically selected and plotted through a pre-programmed process. Although easy to use as a user can view a graph of data with minimal effort, the computing tools developed under this approach are generally not flexible. Different types of data and different types of graphs may require different tools. It is difficult to adapt a tool developed for one purpose to be used for another purpose. Further, a user usually has little control of the input data at run time. For example, many system usage analysis tools can plot a result of the analysis of system usage in a graphical format but the user usually cannot change the type of components included in the analysis or the type of graph that is displayed. Thus, a need for an improved method of plotting numerical data exists.

The present invention satisfies this need. According to the claimed invention, when numerical data is to be plotted, a root object is selected. Then, at least one filter is presented to a user. Each of the at least one filter describes at least one of a type of objects and a type of relationships between objects. Each type of objects and each type of relationships between objects are defined by a schema. One or more user-selected filters are received. Based on the one or more user-selected filters, a set of objects is selected. Each object of the set is related to the root object either directly, or through a chain of intermediate objects, where each chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical. Each object of the set contains numerical data having a format suitable for a mathematical analysis. The mathematical analysis of the numerical

data is arranged and a result of the mathematical analysis of the numerical data is plotted on a graph.

The invention is set forth in claims of varying scopes of which Claim 1 is illustrative.

> 1. A method of plotting numerical data, comprising:
> selecting a root object;
> ***presenting to a user for selection at least one filter, each of said at least one filter describing at least one of a type of objects and a type of relationships between objects, each type of objects and each type of relationships between objects being defined by a schema***;
> ***receiving one or more user-selected filters***;
> ***based on said one or more user-selected filters, selecting a set of objects, each object of said set being related to said root object either directly, or through a chain of intermediate objects, where each chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical, each object of said set containing numerical data having a format suitable for a mathematical analysis***;
> arranging said mathematical analysis of said numerical data; and
> plotting a result of said mathematical analysis of said numerical data on a graph. (Emphasis added.)

The Examiner admitted that Hellerstein et al. do not teach the step of selecting a root object; nonetheless, the Examiner asserted that Hellerstein et al. teach the step of selecting a set of objects which are all related to the root object either directly, or through a chain of intermediate objects.

Applicants would like to point out that if the reference does not teach the step of selecting a root object as admitted by the Examiner, it cannot teach the step of selecting objects that are related to the root object. Hence Applicants submit that Hellerstein et al. do not teach the step of selecting objects that are related to the root object etc.

Further, Hellerstein et al. do not teach the step of presenting to a user for selection at least one filter, each of said at least one filter describing at least one of a type of objects and a type of relationships between objects, each type of objects and each type of relationships between objects being defined by a schema, the step of selecting a set of objects, based on said one or more user-selected filters, each object of said set being related to said root object either directly, or through a chain of intermediate objects, where each chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical, each object of said set containing numerical data having a format suitable for a mathematical analysis.

Hellerstein et al. teach a method for exploratory analysis of data for event management. Specifically, Hellerstein et al. advocate the use of an event browser that provides an integrated environment for analysis of large volumes of semi-structured or non-structured data, such as event logs. The event browser deals with textual messages directly. To deal with the textual messages, the event browser integrates a parsing mechanism or engine and an analysis tool in one package. The role of the parsing engine is to translate an event message into a set of attribute values defined by the parsing rules, which are user-defined. For example, if parsing rules define information about host name, event type and time stamp, an event message is translated into a tuple of: host name, event type and time. The host name of each system is cross-referenced to an ID number for plotting purposes. Likewise, the event type of each event is cross-referenced to an ID number for plotting purposes. Thus, events can be plotted on a two-dimensional graph using host ID and time as two axes.

Thus, Hellerstein et al. teach that parsing rules, which are user-defined, take events which are in the form of textual messages and translate them into attribute values. Hellerstein et al., however, do not teach that a selected object of said set contains numerical data having a format suitable for a mathematical analysis. Nor do they teach the step of selecting a set of objects, based on one

or more user-selected filters and that a chain of intermediate objects has the same length and all objects at a given level of each chain have a relationship with a parent object which is identical. Please note that nowhere in their disclosure do Hellerstein et al. so much as mention the word ***schema*** let alone teach that type of objects and type of relationships between objects are defined by a schema as claimed in the present invention.

After admitting to the deficiency of Hellerstein et al., the Examiner asserted that Chandra et al. do teach the step of selecting a root object. Therefore, the Examiner continues, it would have been obvious to combine the teachings of the two references to arrive at the claimed invention. Applicants submit that the two references cannot properly be combined.

Chandra et al. teach a method for matching consumers to events. According to Chandra et al., a matching capability is provided, which facilitates the matching of the consumers to the events. The matching facility includes a search data structure (e.g., a search tree or a search graph), which is used to determine the consumers interested in a particular event. Specifically, when a consumer is interested in an event, the consumer registers a filter and an action to take in response to the event with the system. The registered filter is then stored in a search data structure, such as a node of the search tree. The tree has a distinguished node that is designated as root. Accordingly, when an event is received, the search data structure is searched (i.e., the tree is traversed from the root node to the last node) to find all consumers interested in the event.

Since Hellerstein et al. advocate the use of an event browser that provides a user an integrated environment for analyzing large volumes of semi-structured or non-structured data while Chandra et al. teach a method for matching consumers to events, there is no motivation to combine their teachings absent a specific suggestion to do so.

Nonetheless, even if one were to combine the two teachings together, the resulting combination would not teach the invention. As pointed above, Hellerstein et al. do not teach the claimed elements as the Examiner asserted

while, according to the Examiner, the Chandra et al. reference is used to show that the step of selecting a root object is known. Thus, their combination would not show the claimed invention.

Hence, Applicants submit that Claim 1, as well as its dependent claims are allowable. The other independent claims (i.e., Claims 11 and 22), which all incorporate in one fashion or another the emboldened-italicized limitations in the above-reproduced Claim 1 and the dependent claims of Claim 11 are allowable as well. Consequently, Applicants once more respectfully request reconsideration, allowance and passage to issue of the claims in the application.

Respectfully Submitted

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